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DIV. OF OIL, GAS & MINING

M/035/002

Kennecott

January 21, 2003

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Subject: Plans for Waste Rock Disposal in Lower Bingham Canyon at Kennecott Utah Copper's Bingham Canyon Mine – DOGM Permit # M/035/002 and Groundwater Discharge Permit # UGW350010

Dear Sirs:

This letter and the attached maps describe the planned waste rock disposal plan for lower Bingham Canyon at Kennecott Utah Copper Corporation's Bingham Canyon Mine. Waste rock from the Bingham Canyon Mine has been placed in Bingham Canyon and its tributary drainages for more than 50 years. The existing dump face immediately above the Dry Fork Shops area is up to 800 feet high with minor step-backs. The extension of waste rock disposal activities into the lower canyon will allow the outer dump face to be fully stair-stepped and ultimately reclaimed.

Waste rock disposal will begin in mid-2003 and the outer dump face will be completed by about 2006. After 2006 dumping will continue in the upper canyon but no further disturbance is planned on the outer dump face. As shown on the map titled "Lower Bingham Canyon Ultimate

Dump", waste rock placement in lower Bingham Canyon will extend the dump approximately 4500 feet east of the current dump face. However, areas that have already been impacted by waste rock disposal will underlie most of the new dump. The entire dump extension is within the current Division of Oil, Gas and Mining permit boundaries and is above the cutoff wall in lower Bingham Canyon. After completion of the waste rock disposal operations in lower Bingham Canyon, the total disturbed surface associated with waste rock disposal at the mine will be well below the 8000 acres identified in the 1976 Mining and Reclamation Plan. The new dump is designed to tie into native ridges on either side of Bingham Canyon. This will minimize the footprint of newly disturbed land, will provide a visual screen, will minimize potential impacts to surrounding native drainages and will facilitate the ultimate reclamation of the dump face.

The primary environmental issue relating to waste rock disposal in lower Bingham Canyon is the temporary loss of some key water management structures.

Water Management Systems

Waste rock disposal in lower Bingham Canyon will cover several key water management structures associated with the corrective action for groundwater contamination in the Dry Fork/Bingham Canyon area. All important structures will be replaced in a timely manner. Wherever possible replacement structures will be constructed before the original structure is lost. Where this is not possible, waste rock placement has been designed to limit the amount of time that use of a facility is lost to less than two years. The replacement facilities will be operated in the same manner as the original facilities (as described in the corrective action plan for the Dry Fork area). All wells will be sampled immediately before abandonment and will be abandoned according to all applicable regulations. The water management structures that will be impacted are listed below.

West Mountain Shaft – The West Mountain Shaft will be filled in and replaced by a new extraction well located at the toe of the lowest waste rock dump in Bingham Canyon (about 4000 feet east of the present location). The replacement well will be screened across the bedrock/alluvium contact at the bedrock low immediately north of Well ECG1103. The replacement well will be installed before the West Mountain Shaft is abandoned so that there will be no hiatus in groundwater extraction from the Bingham Canyon alluvium.

Dry Fork Tunnel – Utilities, pumps and pipes will be installed to continue capturing clean groundwater from upper Dry Fork Canyon and conveying it around the waste rock disposal areas. These facilities will be designed so that they are capable of removing a minimum of 500 gpm from the alluvium and bedrock in the upper canyon. These facilities will be fully operational before the use of the Dry Fork Tunnel is lost.

Extraction Well ECG1192 – Extraction Well ECG1192 will be replaced by a new extraction well in the same approximate location. The replacement well will be the same diameter and screened over the same approximate interval. The replacement well will be installed within two years of the date when Well ECG1192 is abandoned. Well ECG1192 will be pumped almost continuously between now and the date of its abandonment.

Monitoring Wells COG997A&B – Monitoring Wells COG997A&B will be abandoned and replacement wells will be re-drilled in the vicinity of Well COG989, approximately 1400 feet to the northwest. These wells need to be moved because their present location will be repeatedly impacted by waste rock disposal activities, preventing the timely replacement of the wells at their current site. The replacement wells will be screened at the same approximate depths as COG997A&B. The new wells will be installed before the original wells are abandoned.

Monitoring Wells ECG1108A&B – Monitoring Wells ECG1108A&B will be abandoned and replacement wells will be re-dilled in the same approximate location. The replacement wells will be screened at the same approximate depths as wells ECG1108A&B. The new wells will be installed within two years of the date of abandonment of the original wells.

Monitoring Well MDG1101 – Monitoring Well ECG1101 will be abandoned and replacement wells will be re-drilled in the same approximate location. One of the replacement wells will be screened at the same approximate depth as ECG1101 and the other well will be screened about mid-way between the water table and the deeper well. The replacement wells will be installed within two years of the date of abandonment of the original wells.

Monitoring Wells ECG1202A&B – Monitoring wells ECG1202A&B will be abandoned and replacement wells will be installed in the same location. The new wells will be screened at the same approximate depths as ECG1202A&B. The new wells will be installed within two years of the date of abandonment of the original wells.

Reclamation

The stair-stepped 850 feet high outer dump face will be recontoured into a natural landform that ties into the native hillsides on either side. As shown on the attached maps, ("Lower Bingham Canyon Waste Rock Dump Regraded Surface" and "Reclamation Activities on the Bingham Canyon Mine Waste Rock Disposal Areas") the recontoured face will have a maximum slope of about 2.75:1 and will cover approximately 140 acres. The slope will have 15 ft wide benches every 150 vertical feet. These benches will slope approximately two degrees towards the north or south edge of the dump face. The soils forming on the waste rock surface will likely be acidic, so the outer face will be capped with an average of two feet of growth media. The thickness of the growth media will be varied so that approximately 30 % of the face will be capped with up to three feet of material and about 70% will be capped with 18 inches of material. At least a portion of the cap material will likely come from the growth media stockpile on the 5900 ft level of the waste rock dumps about 3000 feet south of Bingham Canyon (approximate mine coordinates N3500, E13800 and N1500, E13500). The areas with a thick cap will be able to support some trees and woody shrubs, but grasses and forbs will likely dominate the areas with a thinner cap. This will create a natural mosaic of plant communities on the outer face.

The face will be cross-ripped or pitted a short time before it is seeded. Cross ripping will be shallow enough to avoid mixing waste rock into the cap material. The 140-acre outer dump face will be seeded with the seed mix listed in Table 1. In addition to general seeding, Gambel Oak and Curl Leaf Mountain Mahogany seedlings will be planted at a rate of 40 plants/acre each (80

seedlings/acre total) on the three-ft thick portions of the cap. The three-ft thick cap areas will also receive 0.05 lbs/acre of Curl Leaf Mountain Mahogany seed. If field assessments indicate it is required, the capped surface will receive a light application of chemical fertilizer to provide nitrogen, phosphorus and potassium (not to exceed 50 lbs/acre available nitrogen) or may receive biosolids at application rates not to exceed 10 tons/acre pure biosolids. In general phosphorus application rates will be higher than nitrogen application rates, which will be higher than potassium application rates.

Reclamation of the outer dump face will be completed within two years of the termination of waste rock placement on the face. When all waste rock disposal operations are ended, the portion of the Bingham Canyon dump located west of the 140-acre outer face will also be recontoured into a natural landform, but it will not be capped or seeded.

Please contact me at 569-7120 or Rich Borden at 569-7141 if you have any questions or concerns about this plan for waste rock disposal in lower Bingham Canyon.

Sincerely,

Paula Doughty

Paula Doughty
Manager Environmental Affairs
and Strategic Resources

Common Name (1)	Species Name	PLS lb/acre
SEEDED SPECIES ON All CAPPED AREAS		
Grasses		**8.5**
Kentucky Bluegrass	Poa pratensis	0.5
Sheep Fescue	Festuca ovina	2.0
Great Basin Wildrye	Leymus cinereus	1.0
Slender Wheatgrass	Agropyron trachycaulum (Elymus trachycaulus)	1.5
Western Wheatgrass	Agropyron smithii (Pascopyrum smithii)	2.0
Bluebunch Wheatgrass	Agropyron spicatum (Pseudoroegneria spicata)	1.5
Legumes		**4.0**
Wild Lupine	Lupinus perennis	2.5
Mountain Lupine	Lupinus alpestris	0.5
American Vetch	Vicia americana	1.0
Forbs		**2.2**
Milfoil Yarrow	Achillea millefolium	0.2
Small Burnett	Sanguisorba minor	1.5
Wasatch Penstemon	Penstemon Cyananthus	0.3
Rocky Mountain Penstemon	Penstemon Strictus	0.2
Trees/shrubs		**1.5**
Rubber Rabbitbrush	Chrysothamnus nauseosus	0.3
Mountain Big Sagebrush	Artemisia tridentata(vaseyana)	0.2
Fourwing Saltbush	Atriplex canescens	1.0
TOTAL SEED		**16.2**
ADDITIONAL PLANTINGS ON 3 FT CAP		
Curl Leaf Mtn Mahogany Seed (2)	Cercocarpus ledifoluis	0.05
Gambel Oak Seedlings	Quercus gambelli	40 seedlings/acre
Curl Leaf Mtn Mahogany Seedlings	Cercocarpus ledifoluis	40 seedlings/acre
(1) Depending upon seed availability at the time of planting, some species may be replaced with similar,		
available species.		
(2) Curl Leaf Mtn Mahogany seed will be hand planted 1/4 to 1/2 inch deep and then have soil compacted over the top.		

Table 1 - Lower Bingham Canyon Waste Rock Disposal Project Reclamation Seed Mix